WHAT IS CLAIMED IS:

1. A method of generating an order matrix, the method comprising:

receiving an order comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic; and

placing the order in an order matrix, wherein the order matrix is at least a two dimensional data structure, each row of the data structure representing a possible token and each column of the data structure representing an order.

2. The method of claim 1 wherein each entry in the order matrix is a single logical bit.

3. The method of claim 1, further comprising inserting a new row into the order matrix, wherein the new row represents a new possible token, such that a new token can be introduced into a pre-existing order matrix.

4. The method of claim 1, further comprising storing the order matrix in an object-oriented fashion.

5. A method of rescheduling a production period for a plurality of orders, the method comprising:

receiving a plurality of orders comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

generating an order restriction matrix for the orders, wherein the order restriction matrix is at least a two dimensional data structure, each row of the data structure

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representing a possible restriction and each column of the data structure representing an order;

determining the restrictions that apply to the orders; and

applying the restrictions to a production restriction matrix to determine potential production periods for the orders.

6. The method of claim 5, wherein generating an order restriction matrix further comprises logically evaluating the associated function for each possible restriction.

7. The method of claim 5, wherein determining the restrictions that apply to the orders comprises analyzing the order restriction matrix column of the orders for all restrictions that are logically true.

8. The method of claim 5, wherein applying the restrictions to a production restriction matrix to determine potential production periods for the orders comprises:

generating an order derived production restriction matrix from the production restriction matrix, the production restriction matrix being at least a two dimensional data structure, rows of the data structure representing a possible restriction and columns of the data structure representing a production period, the generation comprising:

for each restriction of an order, identifying the appropriate row of the production restriction matrix to include in the order derived production restriction matrix; and

evaluating the order derived production restriction matrix to determine potential periods for production.

9. The method of claim 8, wherein the production restriction matrix further comprises an evaluation bit vector row for each restriction vector row, said evaluation bit vector row generated by:

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for each entry in the restriction vector row place a 1 in the associated evaluation bit vector row if the entry in the restriction vector row is 1 or greater; and

for each entry in the restriction vector row place a 0 in the associated evaluation bit vector row if the entry in the restriction vector row is 0 or less.

10. The method of claim 9, wherein evaluating the order derived production restriction matrix to determine potential production periods for the order comprises:

logically ANDing the evaluation bit vector rows;

placing the result in a result bit vector; and

analyzing the result bit vector to determine the production periods having an entry of 1 within the result bit vector, wherein a 1 designates a potential production period.

11. The method of claim 5, further comprising the stage of decrementing the production restriction matrix when a production period is chosen.

12. A method of generating a bill of materials for a production run, the method comprising:

receiving a plurality of orders comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

placing the orders in an order matrix, wherein the order matrix is at least a two dimensional data structure, each row of the data structure representing a possible token and each column of the data structure representing an order; and

generating a bill of materials matrix by evaluating the order matrix, wherein the bill of materials matrix is at least a two dimensional data structure, each row of the data

structure representing a possible item and each column of the data structure representing an order.

13. The method of claim 12, wherein generating the bill of materials matrix further comprises:

for each item vector, each item vector having an associated evaluation function, performing the evaluation function on the token parameters from the order matrix; and

placing the result of the evaluation in the item vector of the bill of materials matrix.

14. The method of claim 12, further comprising the stage of analyzing the bill of materials matrix to determine supply requirements.

15. The method of claim 12, further comprising the stage of decrementing an inventory database as each order is processed based on the items in the bill of materials matrix.

16. A computer for generating an order matrix, comprising:

a processor; and

a memory storage device coupled to the processor;

the processor being operative to:

receive an order comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic; and

place the order in an order matrix, wherein the order matrix is at least a two dimensional data structure, each row of the data structure representing a possible token and each column of the data structure representing an order.

17. A computer for rescheduling a production period for orders, comprising:

a processor; and

a memory storage device coupled to the processor;

the processor being operative to:

receive orders comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

generate an order restriction matrix for the orders, wherein the order restriction matrix is at least a two dimensional data structure, each row of the data structure representing a possible restriction and each column of the data structure representing an order;

determine the restrictions that apply to the orders; and

apply the restrictions to a production restriction matrix to determine potential production periods for the orders.

18. A computer for generating a bill of materials, comprising:

a processor; and

a memory storage device coupled to the processor;

the processor being operative to:

receive a plurality of order comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

place the orders in an order matrix, wherein the order matrix is at least a two dimensional data structure, each row of the data structure representing a possible token and each column of the data structure representing an order; and

generate a bill of materials matrix by evaluating the order matrix, wherein the bill of materials matrix is at least a two dimensional data structure, each row of the data structure representing a possible item and each column of the data structure representing an order.

19. The computer of claim 18, wherein the processor is further operative to:

for each item vector wherein each item vector has an associated evaluation function that evaluates token parameters, perform the evaluation function on the token parameters from the order matrix; and

place the result of the evaluation in the item vector of the bill of materials matrix.

20. A computer-readable medium containing instructions for generating an order matrix, the instructions comprising:

receiving an order comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic; and

placing the order in an order matrix, wherein the order matrix is at least a two dimensional data structure, each row of the data structure representing a possible token and each column of the data structure representing an order.

21. The computer-readable medium of claim 20, wherein each entry in the order matrix is a single logical bit.

22. The computer-readable medium of claim 20, further comprising the stage of inserting a new row into the order matrix, wherein the new row represents a new possible token, such that a new token can be introduced into a pre-existing order matrix.

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23. The computer-readable medium of claim 20, further comprising the stage of storing the order matrix in an object-oriented fashion.

24. A computer-readable medium containing instructions for determining a production period for an order, the instructions comprising:

receiving a plurality of orders comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

generating an order restriction matrix for the orders, wherein the order restriction matrix is at least a two dimensional data structure, each row of the data structure representing a possible restriction and each column of the data structure representing an order;

determining the restrictions that apply to the orders; and

applying the restrictions to a production restriction matrix to determine potential production periods for the orders.

25. The computer-readable medium of claim 24, wherein generating an order restriction matrix further comprises logically evaluating the associated function for each possible restriction.

26. The computer-readable medium of claim 24, wherein determining the restrictions that apply to the order comprises analyzing the order restriction matrix column of the order for all restrictions that are logically true.

27. The computer-readable medium of claim 24, wherein deriving an order derived production restriction matrix for the order comprises:

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generating an order derived production restriction matrix from the production restriction matrix, the production restriction matrix being at least a two dimensional data structure, rows of the data structure representing a possible restriction and columns of the data structure representing a production period, by the stages of:

for each restriction of an order, identifying the appropriate row of the production restriction matrix to include in the order derived production restriction matrix; and

evaluating the order derived production restriction matrix to determine potential periods for production.

28. The computer-readable medium of claim 27, wherein the production restriction matrix further comprises an evaluation bit vector row for each restriction vector row, said evaluation bit vector row generated by the stages of:

for each entry in the restriction vector row place a 1 in the associated evaluation bit vector row if the entry in the restriction vector row is 1 or greater; and

for each entry in the restriction vector row place a 0 in the associated evaluation bit vector row if the entry in the restriction vector row is 0 or less.

29. The computer-readable medium of claim 24, wherein the stage of evaluating the order derived production restriction matrix to determine potential production periods for the order comprises the stages of:

logically ANDing the evaluation bit vectors;

placing the result in a result bit vector;

analyzing the result bit vector to determine the production periods having an entry of 1 within the result bit vector, wherein a 1 designates a potential production period.

30. The computer-readable medium of claim 24, further comprising the stage of decrementing the production restriction matrix when a production period is chosen.

31. A computer-readable medium containing instructions for generating a bill of materials for a production run, the instructions comprising:

receiving a plurality of orders comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

placing the orders in an order matrix, wherein the order matrix is at least a two dimensional data structure, each row of the data structure representing a possible token and each column of the data structure representing an order; and

generating a bill of materials matrix by evaluating the order matrix, wherein the bill of materials matrix is at least a two dimensional data structure, each row of the data structure representing a possible item and each column of the data structure representing an order.

32. The computer-readable medium of claim 31, wherein generating the bill of materials matrix further comprises:

for each item vector wherein each item vector has an associated evaluation function that evaluates token parameters, performing the evaluation function on the token parameters from the order matrix; and

placing the result of the evaluation in the item vector of the bill of materials matrix.

33. The computer-readable medium of claim 31, further comprising analyzing the bill of materials matrix to determine supply requirements.

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34. The computer-readable medium of claim 31, further comprising decrementing an inventory database as each order is processed based on the items in the bill of materials matrix.

35. A method of scheduling a production period for an order, the method comprising:

receiving an order comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

determining the restrictions that apply to the order; and

applying the restrictions to a production restriction matrix to determine potential production periods for the order.

36. The method of claim 35, wherein determining the restrictions that apply to the order comprises evaluating a selection criteria function with the one or more tokens as parameters for each respective restriction.

37. The method of claim 35, wherein applying the restrictions to a production restriction matrix to determine potential production periods for the orders comprises:

generating an order derived production restriction matrix from the production restriction matrix, the production restriction matrix being at least a two dimensional data structure, rows of the data structure representing a possible restriction and columns of the data structure representing a production period , by:

for each restriction of an order, identifying the appropriate row of the production restriction matrix to include in the order derived production restriction matrix; and

evaluating the order derived production restriction matrix to determine potential periods for production.

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38. The method of claim 37, wherein the production restriction matrix further comprises an evaluation bit vector row for each restriction vector row, said evaluation bit vector row generated by:

for each entry in the restriction vector row place a 1 in the associated evaluation bit vector row if the entry in the restriction vector row is 1 or greater; and

for each entry in the restriction vector row place a 0 in the associated evaluation bit vector row if the entry in the restriction vector row is 0 or less.

39. The method of claim 38, wherein evaluating the order derived production restriction matrix to determine potential production periods for the order comprises:

logically ANDing the evaluation bit vector rows;

placing the result in a result bit vector; and

analyzing the result bit vector to determine the production periods having an entry of 1 within the result bit vector, wherein a 1 designates a potential production period.

40. The method of claim 35, further comprising the stage of decrementing the production restriction matrix when a production period is chosen.

41. A computer for scheduling an order, comprising:

a processor; and

a memory storage device coupled to the processor;

the processor being operative to:

receive an order comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

determine the restrictions that apply to the order; and

apply the restrictions to a production restriction matrix to determine potential production periods for the order.

42. The computer of claim 41, wherein the processor is further operative to evaluate a selection criteria function with the one or more tokens as parameters for each respective restriction.

43. The computer of claim 41, wherein the processor is further operative to:

generating an order derived production restriction matrix from the production restriction matrix, the production restriction matrix being at least a two dimensional data structure, rows of the data structure representing a possible restriction and columns of the data structure representing a production period , the generation comprising:

for each restriction of an order, identifying the appropriate row of the production restriction matrix to include in the order derived production restriction matrix; and

evaluating the order derived production restriction matrix to determine potential periods for production.

44. The computer of claim 41, wherein the processor is further operative to generate an evaluation bit vector row for each restriction vector row, said evaluation bit vector row generated by:

for each entry in the restriction vector row place a 1 in the associated evaluation bit vector row if the entry in the restriction vector row is 1 or greater; and

for each entry in the restriction vector row place a 0 in the associated evaluation bit vector row if the entry in the restriction vector row is 0 or less.

45. The computer of claim 44, wherein the processor is further operative to:

logically AND the evaluation bit vector rows;

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place the result in a result bit vector; and

analyze the result bit vector to determine the production periods having an entry of 1 within the result bit vector, wherein a 1 designates a potential production period.

46. The computer of claim 41, wherein the processor is further operative to decrement the production restriction matrix when a production period is chosen.

47. A computer-readable medium containing instructions for scheduling an order, the instructions comprising:

receiving an order comprising one or more tokens out of a set of possible tokens, wherein a token is a combination of a characteristic and a value of the characteristic;

determining the restrictions that apply to the order; and

applying the restrictions to a production restriction matrix to determine potential production periods for the order.

48. The computer-readable medium of claim 47, wherein the instruction for determining the restrictions that apply to the order comprises the instruction of evaluating a selection criteria function with the one or more tokens as parameters for each respective restriction.

49. The computer-readable medium of claim 47, wherein the instruction for applying the restrictions to a production restriction matrix to determine potential production periods for the orders comprises the instruction of:

generating an order derived production restriction matrix from the production restriction matrix, the production restriction matrix being at least a two dimensional data structure, rows of the data structure representing a possible restriction and columns of the data structure representing a production period, by:

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for each restriction of an order, identifying the appropriate row of the production restriction matrix to include in the order derived production restriction matrix; and

evaluating the order derived production restriction matrix to determine potential periods for production.

50. The computer-readable medium of claim 49, wherein the production restriction matrix further comprises an evaluation bit vector row for each restriction vector row, said evaluation bit vector row generated by the instruction of:

for each entry in the restriction vector row place a 1 in the associated evaluation bit vector row if the entry in the restriction vector row is 1 or greater; and

for each entry in the restriction vector row place a 0 in the associated evaluation bit vector row if the entry in the restriction vector row is 0 or less.

51. The computer-readable medium of claim 50, wherein the instruction for evaluating the order derived production restriction matrix to determine potential production periods for the order comprises the instructions of:

logically ANDing the evaluation bit vector rows;

placing the result in a result bit vector; and

analyzing the result bit vector to determine the production periods having an entry of 1 within the result bit vector, wherein a 1 designates a potential production period.

52. The computer-readable medium of claim 47, further comprising the instruction of decrementing the production restriction matrix when a production period is chosen.

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